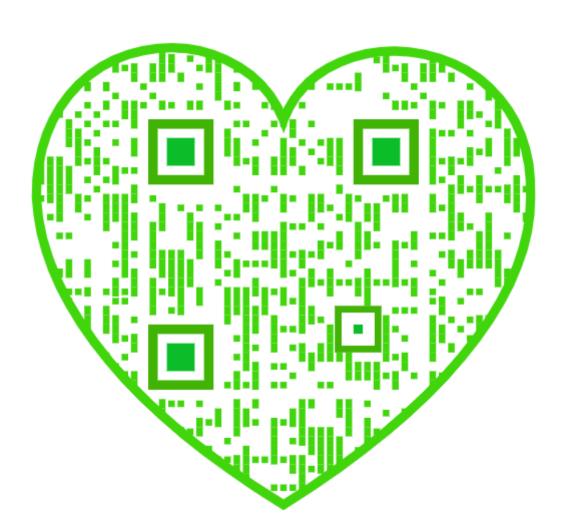


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# Purpose

The purpose of the section is to help you learn how to identify and extract meaningful features from the data to become a Successful Artificial Intelligence (AI) Engineer

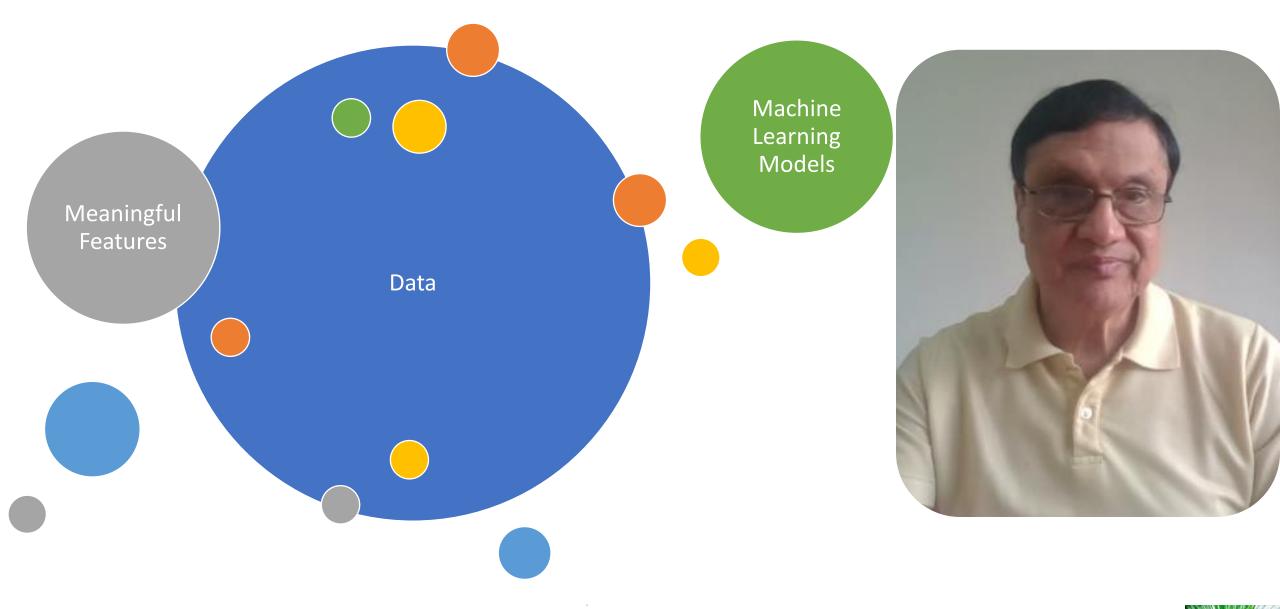
At the end of this lecture, you will learn the following

An example of identifying and extracting meaningful features from a dataset to improve the performance of a machine learning model





#### An example of how to identify and extract meaningful features from the data



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#### An example of how to identify and extract meaningful features from the data

Price of a house based on its features

Size of the house (in square feet)

Number of bedrooms

Number of bathrooms

Neighborhood





# **Started with Feature Engineering**

Created a new feature to represent the total area of the property



Calculated the price per square foot of the house



Create a feature representing the age of the house



Encode categorical neighborhood information



Created interaction features such as the product of the number of bedrooms



Generated polynomial features for numerical features





# **Data Preprocessing**

Handled missing values

Scaled numerical features

Encoded categorical variables





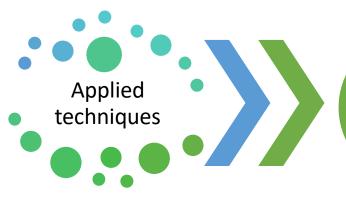
### **Feature Selection**



Selected the most relevant features

ANOVA and mutual information

Significant impact on the target variable



Ranked and selected

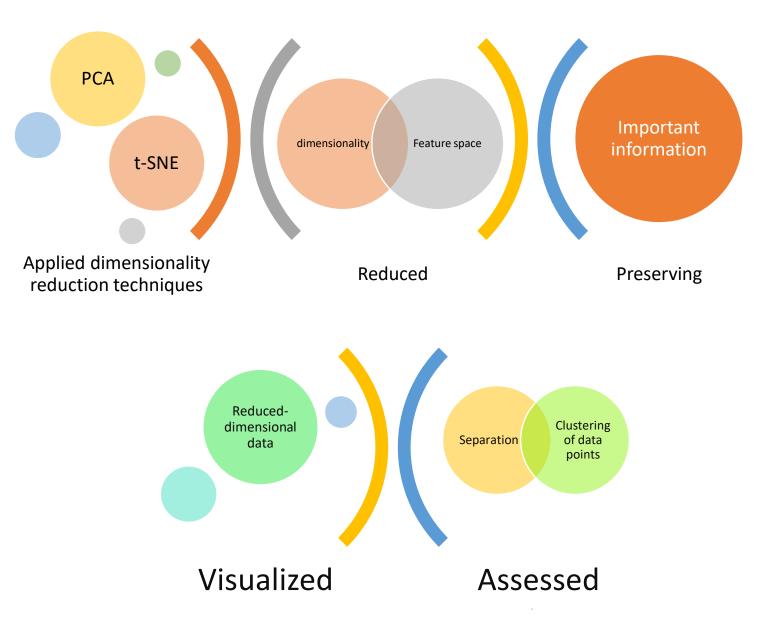
Recursive feature elimination (RFE) and feature importance scores from ensemble methods

Top features





## **Dimensionality Reduction**





## **Model Training and Evaluation**

Trained machine learning models such as

Evaluated the model's performance using appropriate metrics such as

Linear regression

Mean squared error (MSE)

**Decision trees** 

Mean absolute error (MAE)

Ensemble methods using

R2 score

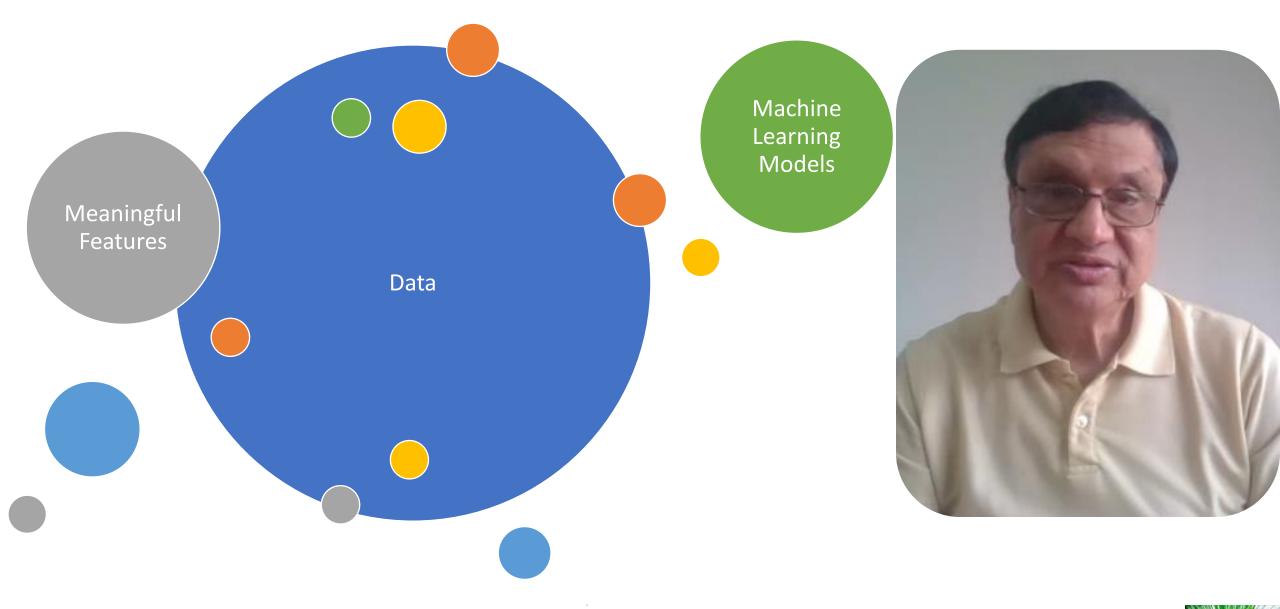
Selected or reduced set of features

Validation set and through cross-validation



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#### An example of how to identify and extract meaningful features from the data

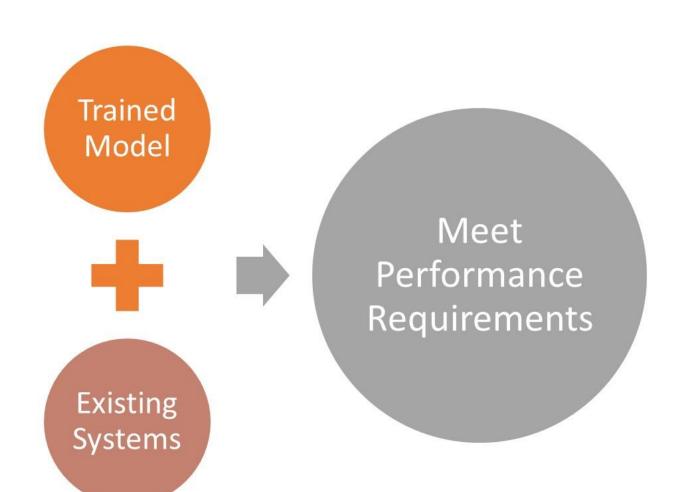


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# What is next?

### **Deployment**









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